

No. XVIII.—THE ARANEÆ, OPILIONES AND PSEUDOSCORPIONES.

By S. HIRST.

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(COMMUNICATED BY PROF. J. STANLEY GARDINER, M.A., F.R.S., F.L.S.)

(11 Text-figures.)

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I. NOTES ON DISTRIBUTION.

THE total number of species of spiders in the collection is forty-nine; forty-five of which occur in the Seychelles group. Thirteen of them had not been recorded previously from these islands, but four of these cannot be determined with certainty, owing to the immaturity of the specimens collected; they belong, however, to genera hitherto unrecorded from these localities. Five others are new species. The total number of spiders now known from the Seychelles is seventy-one, more than half of which are believed to be peculiar to them, and seven of the latter (*Sason seychellanum* Sim., *Cryptothele alluaudi* Sim., *Drassodes inaudax* Sim., *Steriphopus lacertosus* Sim., *Clubiona nigromaculosa* Blackw., *Tetragnatha nigrigularis* Sim., and *T. modesta*, n. sp. (and also *Conothele* sp. which is only represented by immature specimens)), are of especial interest in that they are closely allied to species which occur in the Oriental region or in Australasia. Two others (*Argiope anasuja* Thor., and *Gasteracantha brevispina* Dol.) are also known to inhabit the Oriental region. Two species (*Nephila madagascariensis* Vins., and *Oxyopes dumonti* Vins.), are found also in Mauritius, Madagascar and East Africa. Nearly all the remaining species have a wide range and none of them are of especial interest.

Six out of the eight species of spiders which were collected in the Farquhar islands, have a wide distribution. Another species (*Rhitymna valida* Blackw.), occurs besides in the Amirantes and Seychelles, and the remaining species (*Lathrodectus menavodi* Vins.) was only known from Madagascar. An immature example of a species of *Platyoides*, a genus which has representatives in S. Africa and Madagascar, was also collected in Farquhar.

From the islands of the Chagos group, nine species of spiders were obtained. Five of them belong to species which have a wide range in the tropics. Another species (*Scytodes velutina* Lowe) is known to occur in the Canary islands, in many parts of Africa, in Madagascar and in the Seychelles. Two of the others (*Carrhotus viduus* Thor., and *Gasteracantha brevispina* Dol.) have a wide distribution in the Oriental region; the former has been recorded from the Laccadives (Minikoi) and the latter from both the

Maldives and the Laccadives, and, as mentioned above, it is also found in the Seychelles (Coetivy). The remaining species (*Argiope anasuja* Thor.), occurs in the Seychelles, Laccadives, and in Southern India, but the specimens from the Seychelles and Chagos belong to a well-marked variety, which differs from the Indian form in coloration.

Apparently the central islands of the Seychelles group are the only ones of those visited by the expedition in which Opiliones are found. Six species belonging to this order have already been recorded from these islands and examples of five of these are present in Prof. Stanley Gardiner's collection. In addition, four new species were obtained, so that ten species of Opiliones are now known from the Seychelles, all of them being peculiar to this group. They all belong to the Opiliones laniatores. It is interesting to note that the family Triænonychiidæ*, which has a number of representatives in S. Africa and Madagascar, does not occur in the Seychelles. From a zoogeographical standpoint the most interesting of the seven genera into which these species fall is *Ibalonius*, which is represented by four species; it has representatives also in New Guinea, Fiji and the Philippines. Four of the remaining genera are peculiar to the Seychelles, but one of them (*Holozoster*) is closely allied to *Ibalonius*. The genus *Sitalces*† occurs besides in the island of Réunion, whilst *Hinzuanius* has a wide distribution but is practically restricted to the countries bordering on the Indian Ocean.

The Pseudoscorpion in the collection (*Feaella affinis*, n. sp.) belongs to a genus, which has been recorded from Portuguese Guinea and Natal. It is probable that this species has been introduced into the Seychelles, whilst clinging to some insect host.

I must express my sincere thanks to Prof. J. Stanley Gardiner for having allowed me to study the material on which this paper is based, and also to Prof. L. Jägerskiöld, Dr J. C. C. Loman, and M. Eugène Simon, for their kindness in lending me specimens of Arachnids from the Seychelles and of closely allied species from other localities.

* This interesting family is considered to be restricted to the Southern continents and neighbouring islands, I take the opportunity to point out that the genus *Sclerobunus* Banks (occurring in the Western United States of N. America and Alaska) also belongs to the *Triænonychiidæ*. Immature specimens of a species from Bassett, Queen Charlotte Island, British Columbia, which either belongs to the genus *Sclerobunus* or to some closely allied genus, are preserved in the Brit. Mus. Coll.

† Some time after this paper had left my hands, my attention was directed to Dr W. Sörensen's report on the Opiliones collected by the Swedish expedition to Kilimandjaro and Meru. In this report Dr Sörensen describes, amongst other novelties, a new genus (*Palpipes*) with two new species, for which he creates a new family (*Palpipedoidæ*), the principal character being that the tarsi of the first and second legs are divided into two joints.

It seems to me that *Sitalces novem-tuberculatus* Sim., and *S. gardineri*, n. sp., are congeneric with these two species described by Dr Sörensen under the name *Palpipes*. The tarsi of the anterior legs of *S. gardineri* are formed exactly as described by Dr Sörensen for his species.

In his well-known paper on the extra-European Opiliones (*Zool. Jahrb. (Syst.)* 1902, pp. 198 and 200), Dr J. C. C. Loman places the genus *Sitalces* in the family *Epedanidæ*. I must say here that I, also, think that it belongs to that family. Quite recently, I have received a specimen of an Opilion from Izu, Japan, which resembles the species of *Sitalces* rather closely in structure, the shape of the ocular-tubercle, pectination of the femur of the first leg and granulation of the body being remarkably similar. This Japanese species undoubtedly belongs to a genus (undescribed), which is closely allied to *Sitalces*. The tarsi of its legs are very different from those of *Sitalces*, however, for that of the first has three segments and that of the second four. From this it would appear that the number of the tarsal segments in these Opiliones is, at the most, only of generic importance.

II. LIST OF THE SPECIES.

Araneæ.

				Localities*.
1.	<i>Conothele</i> , sp.?	...	...	Silhouette.
2.	<i>Sason seychellannum</i> , Simon	...	...	Silhouette.
3.	<i>Nesiergus insulanus</i> , Sim.	...	...	Silhouette, Récif.
4.	<i>Chætopelma gardineri</i> , n. sp.	...	...	Silhouette, Praslin, Félicité.
5.	<i>Uloborus geniculatus</i> , Oliv.	...	...	Mahé. Egmont.
6.	<i>Dinopis</i> , sp.?	...	...	Silhouette.
7.	<i>Scytodes velutina</i> , Lowe	...	...	Mahé. Coetivy. Salomon.
8.	„ <i>pholcoides</i> , Sim.	...	...	Mahé.
9.	<i>Platyoides</i> , sp.	...	...	Farquhar.
10.	<i>Steriphopus lacertosus</i> , Sim.	...	...	Mahé.
11.	<i>Cryptothele alluaudi</i> , Sim.	...	...	Mahé, Silhouette, Praslin.
12.	<i>Artema mauriciana</i> , Walek.	...	...	Farquhar. Mahé, Praslin, Bird Island. Coin (Peros).
13.	<i>Smeringopus elongatus</i> , Vins.	...	...	Siren (Cargados). Farquhar. Poivre (Amirantes). Mahé, Long Island, Praslin. Coetivy. Egmont, Coin (Peros), Salomon.
14.	<i>Lathrodectus geometricus</i> , C. L. Koch	...	...	Establishment Island (Cargados).
15.	„ <i>menavodi</i> , Vins.	...	...	Farquhar.
16.	<i>Argyrodes cognatus</i> , Blackw.	...	...	Mahé.
17.	„ <i>rostratus</i> , Blackw.	...	...	Poivre. Silhouette. Coetivy.
18.	<i>Tetragnatha nigrigularis</i> , Simon	...	...	Mahé, Silhouette, Praslin, Félicité.
19.	„ <i>foliifera</i> , Sim.	...	...	Mahé, Silhouette.
20.	„ <i>mandibulata</i> , Walek.	...	...	Praslin. Coetivy.
21.	„ <i>modesta</i> , n. sp.	...	...	Mahé, Silhouette.
22.	<i>Nephila madagascariensis</i> , Vins.	...	...	Astove. Poivre and St Joseph (Amirantes). Mahé, Silhouette, Praslin. Coetivy.
23.	„ <i>cruentata</i> , Fabr.	...	...	Farquhar. St Pierre. Providence. Mahé, Silhouette, Praslin.
24.	<i>Argiope trifasciata</i> , Forsk.	...	...	Establishment Island (Cargados). Praslin.
25.	„ <i>anasuja</i> , Thor, var. <i>fletcheri</i> , var. n.	...	...	Salomon, Coin (Peros), Diego Garcia. Mahé (a single specimen only).
26.	<i>Araneus citricola</i> , Forsk	...	...	Mahé, Silhouette, Praslin.
27.	„ <i>theis</i> , Walek.	...	...	Farquhar. St Pierre. Mahé, Silhouette, Bird Island. Coetivy. Salomon, Diego Garcia.
28.	„ <i>runpfi</i> , Thor.	...	...	Farquhar. St Pierre. Mahé.
29.	<i>Arachnura</i> , sp.	...	...	Silhouette.
30.	<i>Cyclosa insulana</i> , Costa	...	...	Mahé.
31.	<i>Gasteracantha brevispina</i> , Dol.	...	...	Coetivy. Salomon, Coin (Peros).
32.	<i>Firmicus marginatus</i> , Sim.	...	...	Mahé, Silhouette.

* [Mahé, Silhouette, Praslin, Félicité and Récif are among the larger granite islands of the Seychelles. Long and Anonyme are islands in the fringing reef of Mahé. Bird and Dennis are coral islands on the N. edge of the Seychelles bank. Coetivy is a coral island lying to the S.E. of the Seychelles from which it is separated by comparatively deep water. Poivre, St Joseph, Darros and Desroches are islands of the Amirantes to the S.W. of the Seychelles. Providence, St Pierre, Farquhar and Astove are isolated coral islands between the last and Madagascar. Cargados lies due N. of Mauritius, and the atolls of the Chagos group are Peros, Salomon, Egmont and Diego Garcia. J. S. G.]

	Localities.
33. <i>Phrynarachne</i> , sp.?	Mahé, Silhouette.
34. <i>Selenops secreta</i> , n. sp.	Mahé, Long Island, Silhouette.
35. <i>Rhitymna valida</i> , Blackw.	Farquhar. Desroches, Darros, St Joseph, Poivre. Mahé, Silhouette, Praslin, Bird Island, Dennis Island.
36. <i>Heteropoda regia</i> , Fabr.	Desroches, Poivre. Mahé, Praslin, Bird Island, Dennis Island. Diego Garcia, Coin (Peros), Salomon.
37. <i>Rhacocnemis guttatus</i> , Blackw.	Mahé, Silhouette.
38. " <i>elegans</i> , n. sp.	Mahé, Silhouette.
39. <i>Thomassetia seychellana</i> , n. sp.	Mahé, Silhouette.
40. <i>Clubiona nigromaculosa</i> , Blackw.	Anonyme Island.
41. " <i>mahensis</i> , Sim.	Mahé, Silhouette.
42. <i>Voraptus tenellus</i> , Sim.	Mahé, Silhouette.
43. <i>Lycosa urbana</i> , Cambr.	Astove. St Pierre. Mahé, Praslin, Félicité.
44. <i>Asemonea pallens</i> , Blackw.	Mahé, Silhouette, Dennis Island.
45. <i>Hispo striolata</i> , Sim.	Mahé, Silhouette.
46. <i>Baviola braueri</i> , Sim.	Mahé, Silhouette.
47. <i>Myrmarachne constricta</i> , Blackw.	Mahé, Silhouette, Praslin, Dennis Island.
48. <i>Carrhotus viduus</i> , C. L. Koch	Coin (Peros).
49. <i>Plexippus paykulli</i> , Aud.	Siren, Establishment Island (Cargados). Bird Island. Coetivy.

Opiliones.

1. <i>Ibalonius inscriptus</i> , Loman	Mahé, Silhouette, Praslin.
2. " <i>karschii</i> , Lom.	Mahé.
3. " <i>flavopictus</i> , n. sp.	Mahé.
4. " <i>lomani</i> , n. sp.	Silhouette.
5. <i>Holozoster ovalis</i> , Lom.	Mahé.
6. <i>Sitalces gardineri</i> , n. sp.	Mahé.
7. <i>Mitraceras crassipalpum</i> , Lom.	Mahé, Silhouette.
8. <i>Hinzuanus parvulus</i> , n. sp.	Praslin.
9. <i>Acudorsum albimanum</i> , Lom.	Mahé.

Pseudoscorpiones.

1. <i>Feaella affinis</i> , n. sp.	Silhouette, Praslin.
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So far as I am aware, the only other species of Pseudoscorpion, which has been found in the islands, is *Garypus insularis* Tullgr.

III. THE NEW SPECIES, WITH NOTES ON SOME INCOMPLETELY KNOWN SPECIES.

Araneæ.

3. *Nesiergus insulanus*, Sim.

Nesiergus insulanus, Sim., Hist. Nat. Araign., Vol. ii. (1903) p. 928.

♀. *Carapace* much longer than wide, and about equal in length to the patella and tibia (together) of the first or fourth legs; the cephalic part considerably elevated. Eyes of anterior row slightly procurved and equidistant from one another; the medians rounded and of considerably larger size than the elongated laterals. Apex of *labium* and the inner angles of the *maxillæ* furnished with numerous spinules. *Legs* 4, 1, 2, 3. Anterior legs unarmed except for a single apical spine on the ventral side of the metatarsi; the tibiae and metatarsi of the posterior legs armed with a number of spines. Patella and tibia of first leg (together) slightly longer than those of the fourth. Patella and tibia of third (together) slightly shorter than the metatarsus of the fourth. *Spinnerets* very short, the distal segment conical in shape and shorter than that which precedes it.

Measurements in mm. Length of body 15, of carapace 8·5, greatest width of carapace 6, length of first leg (from base of femur) 22·5, of second 19·5, of third 17·25, of fourth 25·25.

Material. An adult female example from Silhouette, and three young examples from Récif (H. P. Thomasset).

4. *Chatopelma gardineri*, n. sp. (Fig. 1).

Colour: russet brown, the carapace yellowish to yellowish brown.

Carapace. Fovea of small size and very slightly recurved. Anterior row of eyes much more strongly procurved than is the case in *C. olivaceum* C. Koch; the anterior medians slightly further apart from one another than from the elongate anterior laterals, and of smaller size than them.

Legs: less hairy than those of *C. olivaceum*, and the anterior surface of the trochanter and of the femur of the first and second legs (and the posterior surface of the trochanter and femur of the palp) are not furnished with a scopula. Scopulæ of the metatarsi and tarsi of the anterior legs undivided; those of the tarsi of the third and fourth divided by a line of setæ; that of the metatarsus of the fourth occupies about half the length of the segment and is interspersed with long pale-coloured hairs. Tibia of second leg armed below on the outer side towards the base, with a pair of spines as in *C. olivaceum*, but the spine which is present in the middle part of the tibia in that species is absent. The armature of the other legs is the same as in *C. olivaceum*.



Fig. 1. *Chatopelma gardineri*, n. sp. Palpal organ from the outer side.

♂. *Carapace*: about equal in length to the patella and tibia of the second leg and to the metatarsus of the fourth, and shorter than the patella and tibia of the first or fourth.

Palp. Spine of palpal organ long and fine, but shorter than in *C. olivaceum*; its point blunt and very slightly enlarged (Fig. 1).

Legs. Tibial spurs of first leg resembling those of *C. olivaceum* very much in general appearance, but the outer spur is more strongly curved, and the spines of the longitudinal series are only nine in number. Inner spur stouter than that of *C. olivaceum*. Metatarsus of first leg straight.

Measurements in mm. Length of carapace 11, of patella and tibia of first leg 13, of patella and tibia of fourth 13, of metatarsus of fourth 11.5.

♀. *Carapace*: usually about equal in length to the patella and tibia of the first leg and a little shorter than the patella and tibia of the fourth.

Measurements in mm. Length of carapace 10.25, of patella and tibia of first leg 10.5, of patella and tibia of fourth 11.25, of metatarsus of fourth 9.

Material. A single male (the type) and several females from Silhouette. Females and immature examples from Mahé, Praslin and Félicité.

Remarks. The genus *Chætopelma* is known to occur in Egypt, Syria, Central Arabia, and German East Africa (Bagamoyo).

18. *Tetragnatha nigrigularis*, Sim.

Tetragnatha nigrigularis, Sim., Ann. Soc. Ent. France, lxvi. p. 377 (1897).

Material. Numerous examples from Mahé, Silhouette, Praslin, and Félicité.

Remarks. A minute anterior tooth is present below on the chelicera in the female of this species; and there are 9—12 inner teeth, besides the large tooth. *T. nigrigularis* is closely allied to the species from Fiji, Tonga, and Samoa, which was referred with doubt by Keyserling and Koch to *T. mandibulata*, Walck., and to which the name *T. keyserlingii* was subsequently given by Simon*.

20. *Tetragnatha mandibulata*, Walck.

Tetragnatha mandibulata, Walck., Ins. Apt. ii. p. 211 (1841): *T. minax*, Blackw., Proc. R. Irish Acad. Ser. 2, iii. (1877) p. 20, pl. 2, fig. 14: *T. minax*, Sim., Bull. Soc. Zool. France, xviii. (1893) p. 206.

Material. Several specimens from Coetivy and Praslin.

Remarks. This species has already been recorded from Burma to the Sandwich islands. A number of female specimens from Mauritius (Keyserling Coll.) are preserved in the British Museum. They were identified as *T. protensa* by Keyserling†. Judging from the figure that he gives, the male belongs to some other species; unfortunately the

* Ann. Soc. Ent. France, Sér. 6, x. (1890) p. 134. The references to the descriptions by Keyserling and Koch are given by Simon in this paper.

† Verh. z.-b. Wien. xv. p. 847, pl. 21.

male is no longer present in his material. Examples of the true *T. protensa*, Walek., from Mauritius (collected by Mr T. W. Eyre) are also present in the Brit. Mus. Coll., so that it appears that both species occur in the island.

21. *Tetragnatha modesta*, n. sp. (Fig. 2).

Colour. Carapace fawn colour; maxillæ, labium and sternum infusate.

Abdomen greenish, and densely sprinkled with minute whitish specks, its dorsal surface marked with five pairs of dark lateral spots, which are arranged in two longitudinal series. Legs greenish brown.

Carapace very long and narrow; the central impression and grooves similar to those of *T. geniculata* Karsch. Median eyes occupying a quadrate area; the anterior medians larger than the posterior medians. Posterior laterals a little smaller than the posterior medians, but slightly larger than the anterior laterals; the lateral eyes being separated from one another by an interval which is greater than the diameter of a posterior lateral.

Abdomen very long and slender.

Chelicera rather short, the first (distal) tooth of the ventral row being of moderate size and separated by a considerable gap from the ten remaining teeth of the row, which form a continuous series; the two distal teeth of the continuous series of fairly large size, but the others minute. The first tooth of the upper row is a little larger than the first of the lower, and, like it, is separated by a gap from the remaining teeth of the row, but the gap is much greater than is the case in the lower row. The remaining teeth of the upper row are five in number, and the distal one is of fairly large size; they follow one another closely, progressively diminishing in size. Fang of chelicera furnished ventrally, at a little distance from its base, with a strong curved tooth, and also with a minute tubercle at the base (Fig. 2).

Measurements in mm. Length of carapace 2.25, of abdomen 7.

Material. A female specimen (the type) from Mahé, and several others from Silhouette.

Remarks. This new species of *Tetragnatha* is very closely allied to *T. geniculata*, Karsch (a species which occurs in Ceylon and India), but the fang of the chelicera is not geniculate and the armature of the proximal segment of the chelicera is also a little different.

25. *Argiope anasuja*, Thor. (Fig. 3).

Argiope anasuja, Thor., Ann. Mus. Genova, xxv. (1887) p. 162.

var. *fletcheri*, n. var.

This variety differs from the Indian specimens of *A. anasuja* preserved in the British



Fig. 2. *Tetragnatha modesta*, n. sp. Chelicera from below.

Museum, in the following respects. The more posterior of the two dark narrow transverse lines, which are present on the pale anterior trapezoidal area of the abdomen, runs backwards on each side so as to join the broad dark central band; a small median pale-coloured patch, which may become divided into two, is thus separated off from the rest of the pale trapezoidal area (Fig. 3).

Material. Fourteen examples from Salomon, two from Coin (Peros), a single example from Diego Garcia (Point Marianne) and another from Mahé.

All of them are females.

Remarks. *Argiope anasuja* is known from the south of India and from the Maldives. I have not had the opportunity of comparing examples from the last mentioned locality with my material.

34. *Selenops secreta*, n. sp. (Fig. 4).

Colour brownish, carapace with a broad longitudinal yellowish (or yellowish brown) band occupying the centre; the sides dark brown, variegated with a number of yellowish specks. Femora of legs marked above with yellowish bands, the other segments of the legs with pale spots above; in the paler specimens (badly preserved) the yellowish markings are indistinct.

Carapace about as wide as long.

Chelicera armed in a similar manner to that of *S. radiatus* Latr., and the armature of the tibiæ and metatarsi of the anterior legs also the same as in that species.

♂. The row formed by the four anterior *eyes* is only very slightly recurved, and these eyes are of larger size than is the case in *S. radiatus*, the inequality in size* between them and the posterior laterals being less marked than in that species. Moreover the anterior medians are only a little smaller than the anterior laterals, and the space which separates the medians from one another is very much less than the diameter of the eye.

Palp. Tibial apophysis very different in shape to that of *S. radiatus*. It is strongly excavated below, the margin of the excavation being produced on its inner side into a rather long and slender process; a minute intermediate tubercle is present on the sharp edge (of the margin) which intervenes between this process and the main (upper) cusp of the apophysis (Fig. 4).

Measurements in mm. Length of body 9.75, of carapace 4.5, breadth of carapace 4.5, length of first leg 23, of second 22.5, of third 22.5, of fourth 23. In the other male

* The relative size of the eyes and the distances which separate them from one another are subject to considerable variation in this species.



Fig. 3. *Argiope anasuja* var. *fletcheri*, n. var. Dorsal view of abdomen.

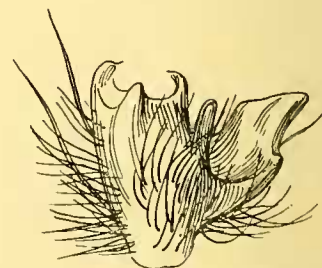


Fig. 4. *Selenops secreta*, n. sp. Tibial apophysis of palp from below.

specimen length of body 10, of carapace 4·5, breadth of carapace 4·25, length of first leg 22·5, of second 24·5, of third 21·5, of fourth 22·5.

♀. Anterior *eyes* further apart from one another than in the male, and the difference in size between the medians and the laterals a little more pronounced.

Vulva very similar to that of *S. radiatus*, but the anterior part of it rather more strongly chitinized.

Measurements in mm. Length of body 15·5, of carapace 6, breadth of carapace 6, length of first leg 22·75, of second 24·5 (that of the other side 21·75), of third 22·5, of fourth 23·5.

Material. Two males (one of which has been selected as the type) and several females and immature examples from Mahé; females and immature examples were also obtained from Long Island and Silhouette.

Remarks. According to M. Simon, *Selenops radiatus*, Latr., occurs also in the Seychelles, but no specimens of this species were collected by Prof. Stanley Gardiner's Expedition.

30. *Rhacocnemis elegans*, n. sp. (Fig. 5 A, B).

This species resembles *R. guttatus*, Blackw., so closely that I have not thought it necessary to give a detailed description of it. It differs from *R. guttatus* in the following respects:

Size larger. Carapace paler in colour and with eight central spots more distinct. *Tibial apophysis* of the palp of the male straighter and its basal portion much inflated, the terminal part being slender; a small dark tooth, which is bifid apically, is present on the tibia, to the inner side of the apophysis (Fig. 5 A).



Fig. 5. *Rhacocnemis elegans*, n. sp. A. Tibial apophysis of palp from below. B. Vulva.

Vulva more produced than is the case in the female of *R. guttatus* and differing somewhat in shape (Fig. 5 B).

Measurements in mm. Length of body of male 11·75, of female 16.

Material. An adult male from Mahé, and six specimens from Silhouette, two of them being adult females and one an adult male.

THOMASETTIA, n. gen.

Carapace a little longer than broad, highest posteriorly and sloping downwards to the ocular region; a short median, longitudinal impression is present in the hinder part. Eyes of anterior row sub-equal in size, equidistant from one another and slightly recurved.



Eyes of posterior row almost straight, the posterior medians smaller than the posterior laterals and closer to one another than to them. Width of clypeus about equal to the diameter of an anterior eye.

Labium broader than long.

Metatarsi of anterior *legs* furnished with a single pair of spines, which are situated at a little distance from the proximal end of the segment.

According to M. Simon, who has kindly examined a couple of specimens of this new genus, which I sent to him, it is very closely allied to *Pleorotus* Sim. and is a little intermediate between that genus and *Theleticopsis*.

39. *Thomasettia seychellana*, n. sp. (Fig. 6 A—C).

Colour. Carapace pale brown, faintly marked anteriorly and in the middle with fine palish longitudinal stripes, and with a radial series of pale streaks or spots towards the middle; its lateral margins also faintly marked with a series of pale dots and the hinder margin palish (Fig. 6 B). Sternum and ventral surface of coxæ and trochanters of legs pale brown in colour. Femora of legs also pale brown and marked with yellowish bands;

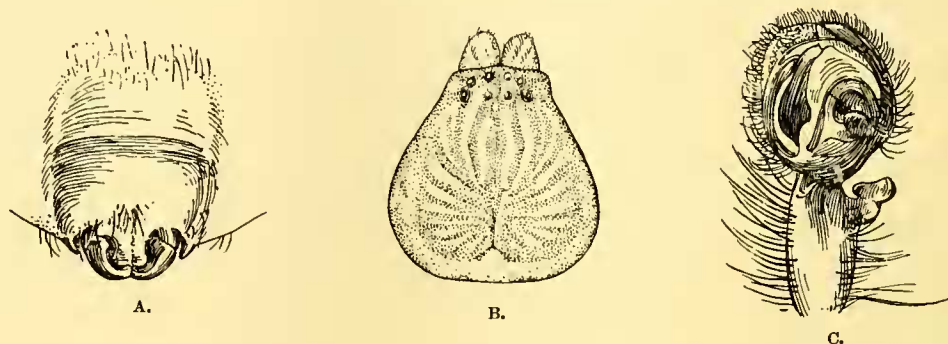


Fig. 6. *Thomasettia seychellana*, n. sp. A. Vulva. B. Carapace. C. Palpal organ from below.

the distal segments (with the exception of the tarsi) are a deeper shade of brown than the femora. In a number of specimens the abdomen is almost quite dark above, but even in these specimens traces of a pattern, picked out in yellowish brown, are usually present. In the paler examples (especially the young ones), in which the abdomen is distended, the ground colour of the abdomen is rather pale yellowish brown (both above and below), the dorsal surface and the sides being speckled with dark brown, the central specks above often uniting to form V-shaped markings, which are arranged in a longitudinal series.

Chelicera. Three teeth are present on the lower side of the fang-groove, the inner one of them is much smaller than the other two and is separated from them by a short interval. The teeth above the fang-groove are also three in number.

Legs. Tibiæ of anterior legs furnished with five pairs of spines below; tibiæ of posterior legs with three pairs below.

♂. *Carapace* very slightly longer than the tibia of the first leg and equal in length to the tibia of the second and to the metatarsus of the fourth.

Palp. Patella and tibia of palp about equal in length. Tibial apophysis bifid, the upper part of it being curiously shaped; inner side of the lower surface of the tibia also

somewhat produced. Tarsal organ complicated in structure (for further details of the tibia of the palp and of the tarsal organ see Fig. 6 c).

Measurements in mm. Length of body 14, of carapace 7, breadth of carapace 6, length of first leg (from base of femur) 25·5, of second 27, of third 22, of fourth 24·25.

♀. Very similar to the male, but with shorter legs (for the structure of the vulva, see Fig. 6 A).

Measurements in mm. Length of body 15, of carapace 7·25, breadth of carapace 6·5, length of first leg 22·5, of second 24, of third 20, of fourth 22·5.

Material. Numerous examples from Mahé and Silhouette (including an adult male (the type) and several adult females). A few specimens, which probably belong to the same species, were collected on Praslin; the vulva is slightly different in shape in the only adult example.

Remarks. This species varies much in size, the carapace of the adult female varying from 4—7·25 mm. in length, yet an immature specimen in the collection has the carapace 6·5 mm. in length.

Opiliones.

1. *Ibalonius inscriptus*, Loman (Fig. 7).

Material. Numerous examples from Mahé and Silhouette, and a few from Praslin.

Remarks. The pattern formed by the dark markings of the scutum is essentially the same in the forms described by Mr Loman under the names *I. bimaculatus* and *I. inscriptus* (see Fig. 7). The two large pale-coloured spots which form so conspicuous a feature of the more typical examples of the former are replaced in others by minute and inconspicuous spots or streaks. It is evident therefore that this character cannot be relied upon to distinguish this species from *I. inscriptus*. There do not seem to be any constant structural characters by which it is possible to separate these two forms from one another, and I think that they should be regarded as belonging to a single species.

In many of the specimens the scutum is only armed with the five principal spines. In others it is furnished with a number of small additional processes or tubercles; a pair of them being situated in the middle of the posterior part of the cephalothoracic area, and in the middle of each of the abdominal segments except the last, which has a single median tubercle, besides the large spines. An outer pair of tubercles is also present in these specimens on the second abdominal segment or on both the first and second abdominal segments. Some of the individuals from Mahé in which these additional tubercles are present are very dark in colour and the bands on the legs are scarcely visible, moreover the dorsal surface seems to be more convex in these specimens than is usually the case in *I. inscriptus*.

3. *Ibalonius flavopictus*, n. sp. (Fig. 8).

Colour. Ground-colour of scutum pale yellowish white; its sides much obscured with



Fig. 7. *Ibalonius inscriptus*, Loman. Dorsal view of body.

blackish markings, which are fused to form continuous dark patches on the cephalothoracic area and first abdominal segment, the centre of these divisions of the scutum being occupied by a well-defined and almost rectilinear band of yellowish ground-colour. Posterior segments with the dark markings more isolated; the bases of the central spines of these segments are ringed round with black (Fig. 8). Ventral surface often darkened, but the coxæ and trochanters are pale in colour. Distal segment of chelicera pale-coloured; palps slightly darkened; the legs banded.

Scutum. Grooves of scutum rather indistinct. In addition to the large anterior (unpaired) thorn, the cephalothoracic area is furnished posteriorly with a row of thorns and conical tubercles, and a somewhat similar row is present on each of the abdominal segments. These projections usually diminish in size towards the outsides of the segments, the central pairs being of rather large size. The anterior (unpaired) thorn and the central pair of the row in the hinder part of the cephalothoracic area are especially long, and the thorns placed on either side of the central pair of the series on the third abdominal segment are also very long, sometimes almost equalling them in length. The projections of the row in the hinder part of the cephalothoracic are six in number, the four outer ones being of very small size. Those of the first and second abdominal segments number eight, the central pairs being of moderate size. The projections on the third abdominal segment are also eight in number, but, as mentioned above, in this row those placed next to the central pair are much the largest. Those of the fourth abdominal segment are six in number, the central pair being of moderate size. Three large thorns are present in the middle of the fifth abdominal segment, which is the last of the scutum. A number of scattered granules are present, especially round the large anterior thorn, but most of the surface is free from granules.

Each of the *free abdominal segments* is furnished with a row of small thorns or tubercles.

Palp slightly longer than the body, its armature very similar to that of *I. inscriptus*, Lom. Femur with a single inner spine at the distal end and with 4—5 outer spines below; patella with two inner and one outer, tibia with three inner and three outer, tarsus with two inner and two outer, and with a pair of minute spines (at the distal end) besides.

Legs. Femur of first leg furnished with five long ventral spines, and with a number of tubercles and spines above. Patellæ of legs of all four pairs with a pair of small conical tubercles at the distal end above, each of which bears a hair (smaller tubercles are sometimes present behind this apical pair, and at the apex of the femora). Number of tarsal segments (in the adult example) 3, 9, 5, 5.

Measurements in mm. Length of body 2·5, of palp 2·75.

Material. An adult male example (the type) from Mare aux Cochons, Mahé, and three young examples from the Forêt Noire district, Mahé.

Remarks. Very closely allied to *I. inscriptus*, Lom., chiefly differing in the coloration of the dorsal surface, in the presence of a pair of small conical tubercles on the patellæ of

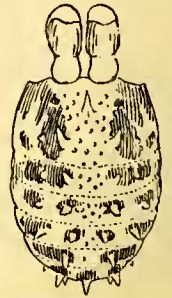


Fig. 8. *Ibalonius flavopictus*, n. sp. Dorsal view of body (Chelicerae diagrammatic).

the legs, and also in the armature of the dorsal surface, but the last-mentioned character is subject to considerable variation in the species of *Ibalonius* and must be used with caution.

4. *Ibalonius lomani*, n. sp.

Colour dark brown, the tarsi pale yellowish.

Scutum strongly convex, and with its surface roughened throughout by minute granules; the grooves ill-defined. Four pairs of long thorns are present, besides the long median anterior thorn; the first pair is situated in the hinder part of the cephalothoracic area, a little in front of the slight groove which indicates the boundary between cephalothorax and abdomen; the remaining pairs occur on the second, third and fifth abdominal segments respectively. The thorns of the first and third pairs are very long, those of the third pair being slightly the longest, and much further apart from one another than is the case with the others.

Ventral surface. Coxæ more closely granular than is the case in *I. inscriptus*; the sternites are also granular.

Palp slightly shorter than the body; its armature is exactly similar to that of *I. flavopictus*, n. sp.

Legs of moderate length. Femur of first furnished with a row of tubercles and spines both above and below. Number of tarsal segments 3, 8, 5, 5.

Measurements in mm. Length of body 3.25, of palp 3.

Material. A single specimen of the male sex from Silhouette.

Remarks. This species is closely allied to *I. inscriptus*, Lom., chiefly differing in that the surface of the scutum is closely granular; the spinal armature of the scutum is also different.

Genus *SITALCES*, Sim.

Scutum convex, the cephalothoracic area being a little more elevated than the rest of the scutum and separated from it by a well-marked groove. Ocular tubercle high and conical and armed with two or three conspicuous prominences, which are arranged in a longitudinal series; eyes situated at the base of the tubercle.

Palp rather weak and armed with spines, which, with the exception of the two strong basal spines of the femur, are not borne on processes.

Legs. Femur of first leg pectinate.

6. *Sitalces gardineri*, n. sp. (Fig. 9).

Colour pale yellowish brown. Scutum faintly marked with an irregular fuscous pattern: the posterior plates of the ventral surface (and the last abdominal plate) are also fuscous.

Scutum. Grooves rather indistinct, with the exception of that which forms the

boundary between the cephalothoracic area and the rest of the scutum. Ocular-tubercle of large size and furnished dorsally with three prominences, which are arranged in a longitudinal series; the anterior one being very long and pointing forwards and upwards; the second very much smaller; and the posteriormost minute and tubercular (Fig. 9). The whole surface of the scutum is covered with large and conspicuous granules, each of which carries a short and stout hair. A pair of enlarged and almost tubercular granules is present in the middle of the second abdominal segment, they are separated from one another by an interval equal to their diameter. Another pair, which are slightly further apart from one another, are placed in the middle of the third. Slightly enlarged granules, which are also paired, occur on the first and fourth abdominal segments, and the granules of these pairs are further apart from one another than those of the second and third segments. A number of the granules of the middle part of the cephalothoracic area are also enlarged. Posterior margin of the scutum furnished with three conspicuous projections (the middle one being much the largest), and also with enlarged granules.

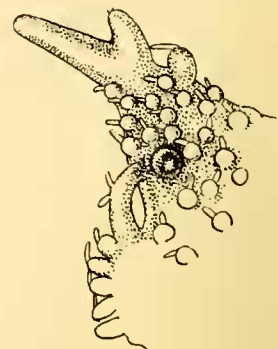


Fig. 9. *Sitalces gardineri*, n. sp. Ocular-tubercle from the side.

Ventral surface furnished with granules similar to those of the upper surface, but of smaller size. Coxa of fourth leg a little broader and much longer than the coxæ of the other legs; the anterior side of the free part of the segment with 5—6 little projections, and the dorsal side with a somewhat larger projection.

Palp rather weak and shorter than the body. Femur armed below, at the proximal end, with two spines, and with a distal spine on the inner side. Patella about half the length of the femur, about equal in length to the tibia, and a little shorter than the tarsus; it is armed with two inner spines and with a minute outer spine. Tibia with three inner and two outer spines. Tarsus much longer than the claw and furnished with three spines on each side, the distal pair being much more slender than the others.

Legs of moderate length. Femur of first pectinate both above and below, the teeth in the dorsal series 13 in number, those in the ventral series 11—12 in number; its trochanter with 1—2 small dorsal prominences and with three small ventral prominences.

Measurements in mm. Length of body 2.75, of palp (from base of femur) 1.7.

Material. A single mutilated female example from Mahé.

Remarks. M. Eugène Simon, to whom I sent a sketch of the ocular tubercle of the new species described above, kindly informs me that I am right in thinking that it belongs to the genus *Sitalces*. According to Loman, however, the two species of this genus (both of which are from the island of Réunion) probably belong to different genera. Judging from Simon's description I should say that this is very possibly the case, but I have not examined specimens of these species, and therefore I am unable to express a definite opinion upon them. There is little doubt, however, that the species from the Seychelles is closely allied to *S. novem-tuberculatus*, Sim., and I propose to regard the latter as the type-species of the genus *Sitalces*.

8. *Hinzuanius parvulus*, n. sp. (Fig. 10).

Colour. Body dark brown; distal ends of the tibiæ of the second and fourth legs white; the distal tarsal segment of the third and the distal end of the metatarsus and the tarsal segments of the fourth are also pale-coloured; the remaining segments of the legs being dark brown in colour.

♀. *Scutum.* Dorsal surface of scutum and free segments roughened with minute granules and entirely unarmed. Eyes situated on the outer sides of very slight elevations, and very widely separated from one another; they are separated from the lateral margins of the scutum by an interval which is rather less than twice the diameter of an eye. Cephalothoracic area marked off from the rest of the scutum by a deep groove; a fine transverse groove is also present a little in front of the posterior margin of the scutum, and it is connected with the anterior transverse groove by a pair of fine lateral (longitudinal) grooves (one on each side of the scutum), which run parallel to the outer margins, and are continued a little distance forwards (after joining the anterior transverse groove), coming to an end below the eyes.

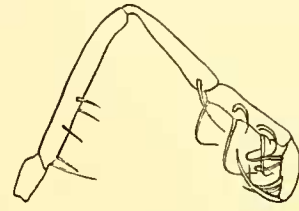


Fig. 10. *Hinzuanius parvulus*, n. sp. Palp from the inner side.

Palp very long and slender. Femur of great length and armed below with a few minute spines. Patella longer than tibia, and with only a very short narrowed portion at the base, the rest of the segment gradually increasing in stoutness; it is armed with a single apical spine on the inner side. Tibia with two inner and three outer spines. Tarsus equalling the claw in length and armed with two spines on each side (Fig. 10).

Legs. Proximal tarsal segment of the two posterior pairs of legs longer than the four distal segments together. Number of tarsal segments 3, 5, 5, 5.

Measurements in mm. Length of body 2.25, of palp (including trochanter), 3.9.

♂. Resembling the female very closely in colour and in almost all the structural details also. The structure of the tarsi of the posterior legs is strikingly different, however; the number of tarsal segments of these legs is the same as in the female, but the second segment of the tarsus of the third leg is much swollen and about twice as long as the proximal segment; whilst the corresponding segment of the fourth leg is a little swollen, but is shorter than the proximal. The mandibles are not enlarged, but the genital operculum is distinctly narrower than in the female.

Measurements in mm. Length of body 2.25.

Material. Two females and a male from Praslin.

Remarks. The genus *Hinzuanius* is practically confined to the countries bordering on the Indian Ocean. In the Oriental region, species have been recorded from Sumatra, the Malay Peninsula, Burma and India. In the African continent and neighbouring islands, species are known from Abyssinia, the islands of Socotra and Abd-el-Kuri, Natal, Cape Colony, and from Madagascar.

The new species from the Seychelles does not appear to be very closely allied to any of the previously described species of the genus. The chief characters by which it may be

distinguished from them are the position of the eyes, which are situated very near to the lateral margins of the scutum, the shape and proportions of the segments of the palp (especially the shape of the patella) and the coloration of the legs.

PSEUDOSCORPIONES.

1. *Feaella affinis*, n. sp. (Fig. 11).

Colour reddish brown, the legs and the fingers of the palp paler in colour than the rest of the animal.

Cephalothorax much longer than broad. Prominences of the anterior part the same in number as those of *F. mucronata*, Tullgr., and very similar to them in appearance, but the lateral ones of the anterior row are much broader than the central ones (Fig. 11). A pair of small lateral tubercles are present as in *F. mirabilis*, Ell., and *F. mucronata*. Two transverse depressions or furrows are present; the anterior one, which is situated immediately behind the second row of prominences, is shallow and recurved; the posterior one is rather deep and well marked, and is separated from the anterior furrow by a somewhat elevated area. A slight furrow also occurs between the two rows of prominences. Very similar grooves are present in *F. mucronata*, but they have not been described. Eyes (of each pair) separated from one another by a space which is a little less than the diameter of an eye.

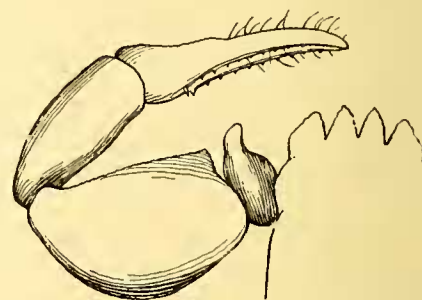


Fig. 11. *Feaella affinis*, n. sp. Palp from above (the anterior row of prominences of the cephalothorax is also shown).

Abdomen resembling closely that of *F. mucronata*; it is as broad as long, and the sculpturing of the tergites is reticulate.

Palp very similar in structure to that of *F. mucronata*, but the spine on the anterior edge of the trochanter is shorter, as compared with the width of the segment, than is the case in that species, and there is only a very slight prominence on the anterior side of the base of the femur. Length of hand (including immovable finger) equal to or a little longer than that of the femur (Fig. 11).

Legs. Trochantin of first leg about equal to the femur in length; tibia shorter than the femur; tarsus very long and considerably exceeding the other segments of the limb in length. Trochantin of fourth leg about half the length of the femur; the latter a little shorter than the tibia or tarsus. A gap is present between the coxæ of the first two legs, much as in *F. mucronata*.

Measurements in mm. Length of cephalothorax .55 (in the largest example .64), of abdomen 1.06, of femur of palp .4, greatest breadth of femur of palp .28, length of tibia .37, of hand (including immovable finger) .46.

Material. Seven specimens from Silhouette and Praslin.

Remarks. The genus *Feaella* was instituted by Mr Ellingsen in 1906, for a highly peculiar species of Pseudoscorpion (*F. mirabilis*, Ell.) collected by the late Sig. Fea in

Portuguese Guinea. A second species (*F. mucronata*, Tullgr.) was collected in Natal by Dr Trägårdh. The new species is very closely allied to the latter species, the principal differences being that the lateral prominences of the anterior margin of the cephalothorax are broader than the middle ones, and that the palp is less strongly armed. These differences are, perhaps, not important enough to be regarded as of specific value, and it is possible that this form should be regarded as a local variety of *F. mucronata*.

IV. LITERATURE.

The following is a list of the papers which contain descriptions of Seychelles Arachnida (belonging to the orders Araneæ, Opiliones and Pseudoscorpiones). Nos. 1—3 deal exclusively with Seychelles Arachnida.

1. A List of Spiders captured in the Seychelles Islands, by Prof. E. Perceval Wright, M.D., F.L.S.; with descriptions of Species supposed to be new to Arachnologists, by John Blackwall, F.L.S. Notes and Preface by the Rev. O. P. Cambridge, M.A., C.M.Z.S., *Proc. R. Irish Acad.* Ser. 2, Sci. iii. (1877) pp. 1—22, pls. 1 and 2.

2. Mission scientifique de M. Ch. Alluaud aux Îles Seychelles (mars, avril, mai 1892), Arachnides, by M. Eug. Simon, *Bull. Soc. zool. France*, xviii. (1893) pp. 204—211.

3. Études Arachnologiques, 29th Mémoire. Arachnides recueillis en 1895 par M. le Dr Brauer (l'Université de Marburg) aux Îles Seychelles; par M. Eug. Simon. *Ann. Soc. Ent. France*, lxvi. (1897) pp. 370—388.

4. Neue aussereuropäische Opilioniden, by Dr J. C. C. Loman, *Zool. Jahrb. (Syst.)* xvi. (1902) pp. 163—216, pl. 9: (Seychelles Opiliones, pp. 189, 200—206, 209—210).

5. *Histoire naturelle des Araignées*, by M. Eug. Simon, Vol. ii. (1897—1903) 1080 pp. (Notes on a number of species from the Seychelles and the original description of a new species (*Nesiergus insulanus*, Sim.) are to be found in this work.)

6. Zur Kenntnis aussereuropäischer Chelonethiden, by A. Tullgren, *Jahrb. Hamb. Wiss. Anst.* xxiv. (1906) pp. 21—73, pls. 1—5, *Garypus insularis*, Tullgr. pp. 62 and 63, pl. 5, fig. 19.